

6

CP

The production of hydrogen peroxide by the explosion method. M. V. Polyakov, E. V. Lifanov and D. S. Nosenko. *Acta Physicochim.* U. R. S. S. 10, 441-51 (1930) (in English).—See C. A. 33, 4805; F. H. R.

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

CROSS-SECTION INDEX																									
CROSS-SECTION INDEX													CROSS-SECTION INDEX												
<p>Kinetics of the slow oxidation of ethylene. M. V. Polyakov and F. M. Vainshtein. <i>Acta Physicochim. U. R. S. S. R.</i> 11, 415-20(1969)(in English). Exptl data are given in 20 plotted curves for the reaction $C_2H_4 + 3O_2$ on Pt wires at 700-800°, 100-300 mm. pressure, in glass and quartz vessels of 20-30 mm. diam. The reaction reaches a limit at about 30% of gases reacted, the limit being lower the shorter the Pt wire used. The Pt wire becomes more active with use. The results show that the reaction is a case of heterogeneous-homogeneous catalysis, both proceeding by a chain mechanism.</p> <p>P. H. Rathmann</p>																									
<p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
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[illegible]

PROCESSES AND PROPERTIES INDEX																									
1ST AND 2ND ORDERS													2ND AND 4TH ORDERS												
<p>Kinetics of slow oxidation of carbon monoxide. A. V. Kozminskaya and M. V. Poljanov (Acta Physico- chim. U.R.S.S., 1939, 11, 427—442).—The slow oxida- tion of CO by O₂ has been studied at 450—800° and 30 mm. (< limiting ignition pressure) in a quartz vessel and in presence of Pt wires of varying length. At 450° the reaction is heterogeneous, its rate increas- ing with increasing area of Pt; above 600° it becomes homogeneous as well, as with the slow oxidation of H₂, CH₄, and C₂H₄ (cf. preceding abstract). The reaction is not complete at any of the temp. used. A chain mechanism is shown to be probable in the heterogeneous catalysis. F. L. U.</p>																									
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>1ST AND 2ND ORDERS</p>													<p>2ND AND 4TH ORDERS</p>												

1ST AND 2ND CATEGORIES										3RD AND 4TH CATEGORIES									
PROCESSES AND PROPERTIES INDEX																			
<p>CA</p> <p>The mechanism of the formation of oxides of nitrogen in the explosion of combustible mixtures. II. M. V. Polyakov and R. I. Genkina. <i>Acta Physicochim. U. R. S. S. R.</i> 11, 443-52 (1939) (in English); cf. C. A. 34, 14589. Data on the yield of NO in the explosion of reaction vessel N₂ as a function of pressure and diam. of reaction vessel show that the max. amt. of NO is obtained at a definite pressure which is a function of the diam.: 1.0% at 310 mm. with diam. = 8.6 cm.; 1.4%, 200 mm., 11.5 cm.; 1.35%, 180 mm., 15.5 cm.; 1.15%, 140 mm., 24 cm. The results support the chain mechanism theory of the reaction as proposed by P. and G. P. H. Rathmann</p>																			
<p>24</p>																			
ASR-SLA METALLURGICAL LITERATURE CLASSIFICATION										ESTIMATE NUMBER									
19000 19100 19200 19300 19400 19500 19600 19700 19800 19900										19000 19100 19200 19300 19400 19500 19600 19700 19800 19900									

EL'KONBARD, A.G., GENKINA, T.I., POITYANOV, T.V.


"On the Question of the Mechanism of the Formation of Nitric Oxides during the Explosion of Combustible Mixtures"; 13, No. 4, 1939; Insti. of Phys. Chem. imeni Pizarzhevskiy, Dnepropetrovsk; Rcd 13 July 1938

Report U-1613, 3 Jan. 1952

1. KEYMARK, I. Ye; KULESHOVA, L. P. ; POLYANOV, M. V.

2. USSR (600)


"The Kinetics of the Slow Oxidation of Hydrogen," Zhur.
Fiz. Khim, 13, No. 11, 1939. Dnepropetrovsk, Institute
of Physical Chemistry imeni Academician L. V. Pisarzhevski
Academy of Sciences Ukrainian SSSR. Received 13 June 1938

9.  Report U-1615, 3 Jan 1952

1. POLYAKOV, M. V.; GEMINA, R. I.

2. USSR (600)

"The Problem of the Mechanism of the Formation of Nitro-genoxides during the Explosion of Fuel Mixtures" II., Zhur. Fiz Khim, 13, No. 10, 1939. Dnepropetrovsk, Institute of Physical Chemistry imeni L. V. Pisarzhevskiy. Received 28 April 1939.

9.  Report U-1615, 3 Jan 1952.

CO

2

Mechanism underlying the initiation of explosion in a condensed phase. M. V. Polynov, Ya. F. Podkovyrin and L. V. Lomtevich. *Compt. rend. acad. sci. U. R. S. S.* 78, 632-3 (1949) (in English).—Impurities like iron ore, shale, copper ore, CaCO_3 , $\text{Ca}_3(\text{PO}_4)_2$, CaO , etc., and 5-10% mixts. with ammoniac lower the flash point from 330° to less than 240° and affect the yield of various gases like the oxides of N and CO. The anomalous lowering of flash point of solid explosives appears to be connected with the endothermic decompos., e. g., of CaCO_3 and does not occur when an exothermic reaction may take place, e. g., between CaO and water. This strengthens the view that the initial stage of an explosion in a condensed phase is a chain mechanism.

S. R. Korman

ASS. SLA. METALLURGICAL LITERATURE CLASSIFICATION

FROM SYGRIUM

FROM ROMANOV

FROM ROMANOV

CA

Mechanism of the catalytic oxidation of ammonia.

E. M. Vainshtein and M. V. Polyakov, *J. Phys. Chem.* (U. S. S. R.) 15, 164-73 (1911). From expl. data on the oxidation of a 0.5% NH_3 stream by O_2 in a 1-cm. tube at temps. from 550 to 800°, and on the yields of NO for various temps. and distances between the 2 or 3 Pt screens used, it is concluded that the catalytic oxidation of ammonia is a hetero-homogeneous reaction. P. H. R.

ASAC L.A. OF AERONAUTICAL LITERATURE CLASSIFICATION

62-10721-1

Mechanisms of ignition of gas mixtures. M. V. Kulakov and
L. P. Kuleshina (*J. Phys. Chem. Russ.*, 1931, 15, 470-474).
The min. pressure at which $\text{CH}_4\text{-O}_2\text{-N}_2$ mixtures can be ignited by a
hot wire conforms to Semenov's equation $\phi P_1 P_2 [1 + a P_3 / (P_1 + P_2)] = \text{const.}$, where P_1 , P_2 , and P_3 are the pressures of CH_4 , O_2 ,
and N_2 respectively, and a is the diameter of the reaction vessel.
The validity of this equation depends on the existence of an induction
period; it is not valid when the gas is ignited by a spark.

J. J. B.

AI-8

EXPERIMENTAL PROCESSES AND PROPERTIES INDEX

bc

Detonation mechanism of combustible mixtures. III. M. V. Poljakov, L. A. Kostitschenko, and D. S. Nosenko (*J. Phys. Chem. Russ.*, 1944, **18**, 115-120).—Mixtures of O_2 40-75, CH_4 20-57, and N_2 1-15% are exploded in a vessel of the diameter d at a total pressure P . At $P = \text{const.}$ the yield of NO passes through a max. near 150 mm. Hg. at $d \approx 125$ mm., and at $d = \text{const.}$ it has a max. near 150 mm. Hg. In the presence of 0.001% of $PbEt_4$ the yield increases with P up to 500 mm. Hg.; no higher pressure could be tested. It is assumed that an explosion starts as a chain reaction and then becomes thermal, and that NO is formed only in the triple collisions in which the chains end. The experiments show then that in small vessels at low P the chain reaction, and at $P > 150$ mm. Hg. the thermal explosion, predominates.

J. J. B.

430-514 METALLURGICAL LITERATURE CLASSIFICATION

EXPERIMENTAL PROCESSES AND PROPERTIES INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

11. AND 12. CODES

PROCESS AND PREPARATION INDEX

6

Heterogeneous-Homogeneous Reactions. (In Russian.)
M. V. Polyakov, *Uspekhi Khimii* (Progress in Chemistry), v. 17, May-June 1948, p. 351-369.

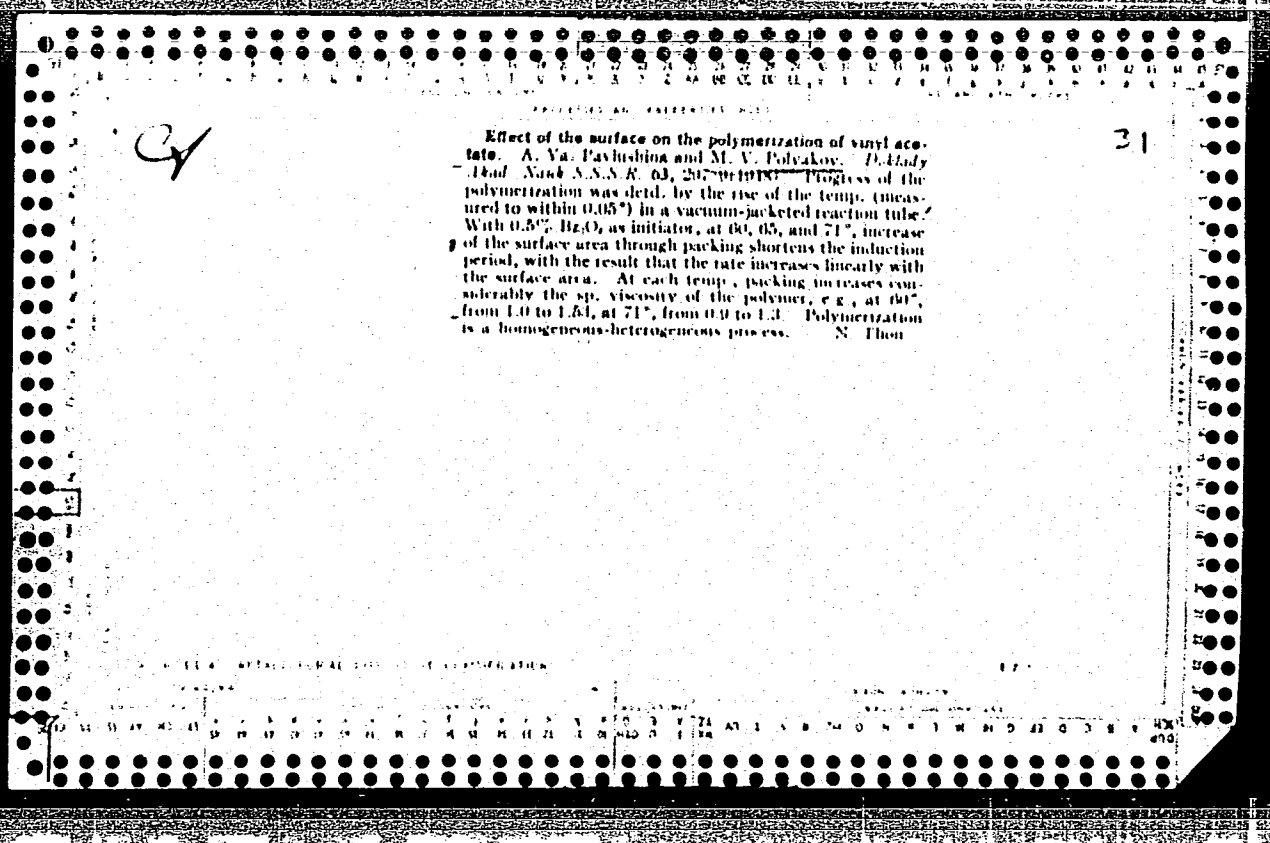
Thorough investigation of existing data leads to the concept of heterogeneous-homogeneous reactions; that is, reactions taking place simultaneously on the boundary surface of two phases heterogeneously; and, in the gas or liquid phase, homogeneously, 60 ref.

ASB-LLA. DETAILING LITERATURE CLASSIFICATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Polymerization of vinyl acetate—M. V. Polyakov, A. Ya. Pavlushina, and T. P. Kornitskii, *PMMA* Zhid. Nauk S.S.S.R., 62, 191-3 (1948).—The kinetics of the polymerization of vinyl acetate as a function of the initial temp. (between 65 and 85°) and of the amt. of Br_2O_5 added (between 1 and 3%) were investigated by the spontaneous rise of temp. (measured with an accuracy of $\pm 0.02^\circ$), in sealed tubes of 14 mm. diam., surrounded by an adiabatic jacket evacuated to 10^{-4} mm. Hg. Both with a const. amt. of Br_2O_5 and varying initial temp., and at const. initial temp. and varying amt. of the catalyst, the curves of rise of temp. against time have an outspoken autocatalytic shape, the temp. rising steeply after an initial induction period. The dependence of the length of the induction period on the initial temp., and its dependence on the amt. of Br_2O_5 , are analogous. With increasing initial temp., or with increasing amt. of Br_2O_5 , the length of the induction period decreases first rapidly, then very slowly. The viscosity of the final polymer varies with the initial temp. and with the amt. of Br_2O_5 in the same way as the induction period. Consequently, polymerization of vinyl acetate is an autocatalytic explosive process. The analogy of the dependence of the induction period on the initial temp. and on the amt. of the catalyst is an evidence of the chain mechanism prevailing during the induction period, and going over into a thermal explosive process under adiabatic conditions. N. Thon

S. T. Jones



CA

Kinetics of simultaneous polymerization of vinyl acetate and methyl methacrylate. M. V. Polyakov and T. P. Kornienko. *Doklady Akad. Nauk S.S.S.R.* 63, 407-9 (1948).—As in the polymerization of the sep. monomers (C.A. 43, 438c), curves of the temp. rise (assumed to be a measure of the rate of the polymerization reaction) as a function of time consist of 3 portions, an induction period, a branch of autocatalytic increase of the temp. to a peak, and a branch of falling temp. In expts. with 1% Bz_2O_2 , both the induction period and the sp. viscosity of the product in 2% soln. in C_6H_6 decreased with increasing initial temp. of the mixt. (65, 70, 75, and 80°). The height of the temp. peak increases with increasing initial temp. In terms of the compn. of the monomer mixt., the induction period has a max. at 70% vinyl acetate X 30% methyl methacrylate; at that compn., the induction period is many times as long as with the pure monomers, attaining 8.5 hrs. at 65°. It is taken to indicate that in the mixt., each component polymerizes independently of the other, and that each acts as a retarding diluent on the polymerization of the other. This conclusion is borne out by the observation that the viscosity of the product first increases with increasing proportion of vinyl acetate, passes through a max., and then decreases. Lengthening of the induction period means decrease of the no. of the initial polymerization centers, hence decrease of the no. of sep. chains, hence greater chain length and higher viscosity.

N. Thon

POLYAKOV, M. V.

U S S R .

V. Experimental foundation of the theory of heterogeneous-homogeneous catalysis. M. V. Polyakov. *Problemy Kinetiki i Kataliza: Akad. Nauk S.S.S.R., Geterogenyye Kataliz*, 320-34 (1949); cf. C.A. 43, 8170j. An extensive review is given of the literature and P.'s data on the variation of the explosive limits and temps. of gas mixts. with the change in the length of solid rods placed in the mixts., in presence and absence of H₂S, as well as data on variation of rates of the slow combustion of such mixts. outside of the explosion limits with change in the type of solid surface and vol.-surface ratios. Conclusions: both the initiation and termination of chain reactions play important roles in slow combustion and in explosion. 49 references. A. D.

PH

PM

CA

Influence of the walls of the vessel on chemical reactions. M. V. Polyakov, *Doklady Akad. Nauk S.S.S.R.*, no. 217:18(1940). Mechanisms proposed for many allegedly purely homogeneous reactions are erroneous through failure to take into account the role of the wall in the generation and termination of chains. In particular, the wall plays an important role in photochem. reactions in soln., the primary effect of light is on mole. adsorbed on the wall. An example of a heterogeneously catalyzed reaction in which the effect of the wall has been disregarded is the oxidation of NH_3 to NO on Pt. The alleged (Andrusov, *C.A.* 20, 1993) optima of temp. and time of contact are, actually, not effects detd. by the mechanism of the catalysis, but are due to a preliminary stage occurring at the wall and resulting in a lowering of the yield of NO . The role of this stage is particularly pronounced at high temps. and long times of contact. That the alleged optima are simulated by a wall reaction follows from the fact that they can be made to disappear through poisoning of the wall. N. Thon

(BA - A1 my '53:444)

CA

2

Mechanism of the slow oxidation of hydrocarbons.
M. Y. Polyakov and V. V. Shalya (L. V. Pisarshevskii,
Inst. Phys. Chem., Acad. Sci. U.S.S.R., Moscow).
Doklady Akad. Nauk S.S.S.R. 73, 1070-82 (1980).—The
rate of slow oxidation of a butane-propane petroleum
fraction, measured by both the rate of pressure increase
and by the temp. rise in the center of the reaction tube,
passes through a max. as a function of time. In a Mo
glass tube 176 mm. long, inner diam. 43 mm., at 376°,
the kinetic curves detd. by the pressure rise and by the
temp. rise coincide very exactly; the rate, and the max.
rate, decrease strongly with decreasing initial pressure,
200, 170, and 120 mm. At const. initial pressure, 200
mm. Hg, the rate and the max. rate increase with the
initial temp. from 300 to 325°, where they are max., and
decrease with further increasing temp. At 325°, a max.
amt. of products of incomplete oxidation (aldehydes,
acids, peroxides) is obtained. At higher temps. the amt.
of products of incomplete oxidation decreases. These
facts alone are in agreement with a homogeneous nature
of the process of incomplete oxidation, and heterogeneous
rupture of chains or heterogeneous completion of the ox-
idation at the walls. If, however, both the interior of the
reaction tube and the capillary carrying the thermo-
couple are coated with NaCl, no reaction at all takes
place within 8 hrs. under an initial pressure of 120 mm. Hg.
At 330°, under an initial pressure of 200 mm. Hg, the
rate is very slow, and the rate max. very low, with all the

walls coated with NaCl. It suffices, however, to bare a
tiny fraction of the surface of the central capillary to
get a very marked increase of the rate of pressure rise
and of the temp. rise, and with 1/2 of the surface bared,
the max. rate is one-half of that found with the total sur-
face bare. This is taken to indicate that the wall is not
just the seat of rupture of chains and complete oxidation
of the intermediate products, but mainly the seat of gen-
eration of chains. The rate max. at a fixed initial pres-
sure decreases linearly with the increase of the fraction
of surface covered by NaCl: at an initial pressure of
200 mm. Hg, the max. rate falls to zero with 100% of the
surface covered, whereas under 150 and 176 mm., the max.
rate is practically zero with ~70% of the surface coated.
It is evident that, of the 2 heterogeneous processes of
chain rupture and chain generation at the wall, the latter
is rate-dtg. The fact that the fraction of surface uncoated
dets. the rate throughout the course of the reaction indi-
cates that the generation of chains at the wall is operative
not only at the initial stage but throughout the reaction.
Applied to heterogeneous catalysis, these results indicate
that proportionality between the rate and the catalyst sur-
face area is not necessarily an indication of a pure hetero-
geneity of the process. Possibly many heterogeneously
catalyzed reactions will prove actually to be mixed homo-
geneous-heterogeneous processes. N. Thon

C. A.

Mechanism of explosive combustion of gaseous mixtures
 M. V. Polyakov and Ya. V. Zhigalov (L. V. Pisarzhevskii
 Inst. Phys. Chem., Acad. Sci. U.S.S.R., Moscow). *Dok-*
lady Akad. Nauk S.S.S.R. 73, 1220-30 (1950). Neither
 the chain nor the thermal theory of explosion can account
 for the previously (C.A. 30, 15389) observed initial rise of
 the yield of NO with increasing pressure and dimensions of
 the reaction vessel, in the explosive combustion of $\text{C}_2\text{H}_4 + \text{O}_2$
 mixts. in the presence of N_2 , followed by a fall to 0.4-0.5%
 under atm. pressure and in large reaction vessels. This rise
 of yield can be explained only by a transition from a chain to
 a thermal mechanism. The increase of the yield of NO with
 pressure and dimensions, due to ternary collisions with N_2 ,
 is halted with beginning predominance of the thermal mech-
 anism, characterized by lower NO yields. An optimum
 yield of NO at a definite pressure and definite dimensions is
 observed in mixts. of any compn.; this contradicts Frank-
 Kamenetskii's interpretation (C.A. 42, 196) of the NO
 yield in terms of richness of the combustible mixt. The
 change-over from a chain to a thermal mechanism accounts
 further for the exptl. variation of the yield of NO in mixts. of
 H_2 , 38, O_2 , 40, N_2 , 22%, in the presence of increasing amts.
 of PbEt_4 . At const. pressure, that yield decreases sharply
 on addn. of very small amts. of PbEt_4 (0.0034%), and re-
 mains fairly const. up to 0.1% PbEt_4 . Apparently, PbEt_4
 takes part in the chain-breaking triple collisions and thus
 lowers the yield of NO. At const. PbEt_4 , the yield of NO
 falls with the total pressure (300, 200, and 100 mm. Hg).
 The lower spark-ignition limit of the mixt. is raised sharply
 by 20-30 mm. Hg when the amt. of PbEt_4 is increased from
 0.0034 to 0.034%, and then continues to rise very slowly
 with further increasing PbEt_4 . In the low-pressure range,
 the explosive combustion is evidently a chain process, and
 PbEt_4 acts as a chain-breaking inhibitor. N. Thon

ACCESSION NR: APL037445

S/0021/64/000/005/0607/0609

AUTHOR: Polishchuk, Yu. N.; Korniyenko, T. P.; Zelenchukova, T. G.; Polyakov, M. V.

TITLE: Effect of a solid surface [of additives in suspension] on the radiation-induced polymerization of vinyl compounds

SOURCE: AN UkrRSR. Dopovidi, no. 5, 1964, 607-609

TOPIC TAGS: vinyl, vinyl polymer, vinyl polymerization, radiation-induced polymerization, ionizing radiation, radiation effect, styrene polymerization, gamma-radiation, cobalt-60 source, gamma-ray-induced polymerization, free-radical polymerization, silica gel, MgO_2ZnO

ABSTRACT: The effect of suspended solid additives on gamma-radiation-induced polymerization of styrene was investigated at room temperature. A Co^{60} source with 1600 g-equivalent activity was used. The data showed that in the case of free-radical polymerization of styrene, the very same additives were active that, according to the literature, increase the rate of radiation-induced poly-

Card 1/2

Polyakov, M.V.

5

USSR

Concerning the mechanism of nitrogen fixation in explosive combustion. Ya. V. Zhisalo and M. V. Polyakov (L. V. Pisarzhevskii Inst. Phys. Chem., Acad. Sci. U.S.S.R., Kiev). *Doklady Akad. Nauk Ukr. R.S.S.R.* 1951, 82-5 (Russian summary, 86); cf. C.A. 45, 1331a. The yield of NO in explosive combustion of mixtures of 56% of $2H_2O + O_2$, 22% of N, and 22% of O depends on the initial pressure of the mixture, the vol. of the reaction vessel, addn. of EtPb, and introduction of brass foil as heat absorber. Addn. of EtPb causes displacement of the range of caloric explosions to higher pressures and to greater volumes of the reactor, and of the curve of yield vs. pressure toward higher pressures. EtPb in low concns. inhibits, at low pressures, the transition of the beginning chain process to the range of caloric explosions. Introduction of brass foil into the reaction vessel decreases the yield of NO at 100-400 mm. of Hg from 0.9 vol. % to 0.1 vol. %, but increases it at 400-700 mm. of Hg from 1.3 vol. % to 2.3 vol. %. The expl. results are interpreted in agreement with a view that the prevailing chain mechanism at the beginning of the explosion and at low pressures changes to a caloric one, and that NO is the product of a termol. chain termination. R. D.

low gas

SHALYA, V.V.; KOLOTUSHA, B.I.; MITROKHINA, V.A.; KULINICH, M.T.;
POLYAKOV, M.V.

Conversion of alcohols to aldehydes in a fluidized bed of copper
and silver catalysts. Ukr. khim. zhur. 29 no.9:904-908 '63.

(MIRA 17:4)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR.

POLYAKOV, M.V.

Mechanism for the catalytic oxidation of ammonia.
M. V. Polyakov. *Ukrain. Khim. Zhur.* 17, 823-31(1951);
Ch. 45, 73124. — The literature is reviewed, and con-
clusions from P.'s expl. work are stated. The observed
optimum conditions for the catalytic formation of NO
are not characteristic of this process but result from the
participation of the walls of the vessel in the fixation of
N at extremely high temps. and for long contact times. All
of the data on the mechanism of this process are reviewed.
The facts point to a heterogeneous-homogeneous scheme.
I. Rovtar Leach.

POLYAKOV, M. V.

USSR/Chemistry - Plastics
Reaction kinetics

Jun 51

"Investigation of the Kinetics and Mechanism of Polymerization of Vinylacetate," M. V. Polyakov, A. Ya. Pavlushina, T. P. Korniyenko, V. V. Shalya, Inst of Phys Chem, Acad Sci Ukrainian SSR, Kiev

"Zhur Fiz Khim" Vol XXV, No 6, pp 647-653

By study of kinetics of polymerization of vinylacetate under conditions of low heat loss, found polymerization to have autocatalytic, explosive

20678

USSR/Chemistry - Plastics (Contd)

Jun 51

character. Investigated dependence of polymerization kinetics and viscosity of polymer on initial temp and amt of catalyst. Discusses polymerization mechanism.

20678

PA 197T20

POLYAKOV, M. V.

USSR/Chemistry - Plastics

Dec 51

"Kinetics of Copolymerization of Vinylacetate and Methylmethacrylate," M. V. Polyakov, T. P. Korniyenko, Inst of Phys Chem imeni L. V. Pissarzhevskiy, Acad Sci Ukrainian SSR, Kiev

"Zhur Fiz Khim" Vol XXV, No 12, pp 1407-1414

Using new method for study of kinetics and mechanism of copolymerization, found that copolymerization of vinylacetate (I) and methylmethacrylate (II) is autocatalytic. By study of a number of relationships encountered in process of copolymerization of I and II, reached certain conclusions,

197T20

LC

USSR/Chemistry - Plastics (Contd)

Dec 51

one of which is that chains of uniform compn are formed from identical particles. Each component is polymerized separately, copolymer being mixt of chains composed of identical particles. Method can be used to clarify copolymerization mechanism.

LC

197T20

POLYAKOV, M. V.

LC

197127

USSR/Chemistry - Oxidation (Contd)
of catalyst by passing reaction mixt through it at optimum conditions of temp (800°C) and with optimum time of contact. To avoid preliminary decomposition of NH_3 on heated walls of tubes, suggested coating them with powdered material, either inert or promoting oxidation (i.e., Pt). Failed to fully explain mechanism of this complex heterogeneous-homogeneous catalytic process.

LC

Dec 51

197127

Investigated catalytic oxidation of NH_3 to NO over Pt grid at different temps and with different times of contact. Explained reasons for existence of optimum conditions of NO under addn of contact, for increased yield (H_2S), and for activation small admixts of poison (H_2S).

"Zhur Fiz Khim" Vol XXV, No 12, pp 1460-1468

USSR/Chemistry - Oxidation
Investigation of the Catalytic Oxidation of Ammonia, M. V. Polyakov, V. I. Urizko, N. P. Gomonka, Inst Phys Chem Imeni L. V. Pissarzhevskiy, Kiev Acad Sci Ukrainian SSR, Kiev

Dec 51

CA

18

The optimum conditions in the catalytic oxidation of ammonia. M. V. Polyakov, V. I. Urisko, and N. P. Galenko (L. V. Piskarskiy Phys.-Chem. Inst., Acad. Sci. Ukr. S.S.R.) *Doklady Akad. Nauk S.S.S.R.* **77**, 835-7(1951).—The facts that the optimum temp. and contact time for the production of NO, and the slopes of the contact time as a function of temp., depend on the dimensions of the quartz vessel, and that the notoriously very slow decompn. of NO cannot be responsible for the defixation of NH_3 to N_2 under nonoptimum conditions, point to the conclusion that the defixation is due to decompn. of NH_3 on the quartz wall prior to its contact with the catalyst. This conclusion is corroborated by detns. of the degree of decompn. of NH_3 in mixt. with N_2 (8% NH_3), in quartz vessels free from Pt sputtered on the wall; the increase of the degree of decompn. with the temp. between 600 and 900° is very much faster with a rate of flow of 0.5 than with 2 l./min., e.g., at 800°, the de-

compu. of NH_3 attains 14 and 7.5%, resp. The decompn. of NH_3 is even faster in mixt. with air (8% NH_3). As a function of the temp., the degree of decompn. is linear, and the slope decreases with increasing rate of flow (0.5, 2, and 4 l./min.); at each temp. (600, 700, and 800°), the degree of decompn. decreases with increasing rate of flow. At the const. rate of flow of 1 l./min., the degree of decompn. of NH_3 reaches a max. at 800°, and then falls between 800 and 900°. Admixt. of 0.1% H_2S in the gas, in the absence of catalyst, lowers the decompn. of NH_3 on the quartz wall; in the presence of catalyst, the same admixt. increases the yield of NO, generally by 5-6% and up to 20-30%. This is understandable if it is assumed that H_2S poisons the wall of contact with the catalyst. The lowering of the premature decompn., and the increase of the yield of NO in the presence of H_2S , are more marked the larger the diam. of the vessel. The decompn. of NH_3 at the wall is of the heterogeneous type. The main process of oxidation of NH_3 proper involves no actually optimum conditions of temp. and contact time, and no actual linear relationship between these conditions.

N. Thon

1951

URIZKO, V.I.; POLYAKOV, M.V.

Investigation of the kinetics of oxidation of methane in formalde-
hyde. Dop. AN URSS no.6:397-399 '53. (MLRA 7:1)

1. Institut fizichnoi khimii im. L.V.Pisarzhevs'kogo Akademii nauk
Ukrains'koi RSR. Predstaviv diysniy chlen Akademii nauk Ukrains'koi
RSR O.I.Brods'kiy. (Methane) (Formaldehyde) (Oxidation)

POLYAKOV, M.V.

5

The incomplete catalytic oxidation of the propane-butane fraction of petroleum gas in the presence of boron oxide. P. A. Sholkhet, M. A. Trotsenko, and M. V. Polyakov. *Doklady Akad. Nauk S.S.S.R.* 89, 519-22 (1953). The oxidation of propane-butane mixt. with O_2 was studied in molybdenum glass vessels. The glass vessels were either uncoated or partially or completely coated with boron oxide. The temp. rise during reaction, pressure rise, and nature of the products were studied. The induction period, t_i , of the reaction at 270° was sharply reduced when 1.3% of the vessel walls was coated (central thermocouple well), and then reduced slightly more when the entire vessel walls were coated. The degree of chain branching ϕ was slightly increased by the coating. The effect on t_i shows that chains start on the surface. The effect on ϕ shows that the coating breaks the chains with somewhat lower efficiency than does the uncoated wall. The reaction is thus of the homogeneous-heterogeneous variety. The activation energy for the branching reaction was 54.0 kcal. in the presence of the catalyst and 51.0 kcal. in its absence. The activation energy obtained by plotting $\log 1/t_i$ vs. $1/T$ was 66.0 kcal. in the presence of the catalyst and 85.0 kcal. in its absence. The max. temp. rise and the max. peroxide concn. were reached at the same time, while the max. concn. of aldehydes, alcs., and other intermediates was attained at a later time. In addn. the activation energy of 55.0 kcal. obtained for the coated flasks by plotting $\log 1/t_m$ vs. $1/T$, where t_m was the time required to reach the temp. max., agrees well with that obtained for the chain branching reaction. This shows that peroxides play a decisive role in this reaction. J. B. L.

sup

POLYAKOV, M. V. and SHOYKHET, P. A.

"The influence of a $V_2O_5 + SnO_2$ Catalyst on the Kinetics of the Reaction and the Composition of Products of the Incomplete Oxidation of Propane-Butane,"
Dokl. AN SSSR, 89, No 6, pp 1057-1060, 1953

The incomplete "soft" oxidation of the propane-butane fraction of petroleum gases consists of a heterogeneous-homogeneous chain reaction, when carried out in the presence of a $V_2O_5 + SnO_2$ catalyst. This catalyst instantaneously generates a large number of primary active centers and lowers the activation energy of the heterogeneous-homogeneous process considerably.

In the heterogeneous-homogeneous regime of the process, the $V_2O_5 + SnO_2$ catalyst manifests a considerable selectivity in respect to the products of incomplete oxidation, which is of theoretical and practical interest.
Presented by Acad N. N. Semenov 20 Feb 53.

259T9

POLYAKOV, M.V.

5

✓ The effect of the condition of the vessel walls and of the silver catalyst on the oxidation of ethylene. M. A. Trotsenko, I. M. Lopa, and M. V. Polyakov. *Doklady Akad. Nauk Ukr. R.S.R.* 1954, No. 3, 108-109 (Russian summary).
CH The effect of the condition of the walls of the reaction vessel, of HF, and of a Ag catalyst on the homogeneous oxidation of ethylene oxide was studied colorimetrically. The results are discussed in light of the theory of homogeneous-heterogeneous catalysis. J. Rovtar Leach

(2)

PA
SAK

POLYAKOV, M. V.

USSR/Physical Chemistry

Card 1/1

Authors : Urisko, V. I. and Polyakov, M. V.

Title : Effect of wall surfaces on oxidation of methane into formaldehyde.

Periodical : Dokl. AN SSSR 95, 6, 1239 - 1241, 21 Apr 1954

Abstract : Effect of wall surfaces on the kinetics of methane transformation into formaldehyde has been investigated experimentally, by the method of a divided calorimeter. A part of the experimental data is given in the article. Diagrams.

Institution : L. V. Pisarevskiy's Inst. of Phys. Chem. of the Acad. of Scs. of UK.SSSR.

Submitted : 17 Feb 1954

Polyakov, M. V.

✓ The mechanism of incomplete catalytic oxidation of ethylene. M. A. Troitsenko and M. V. Polyakov. *Doklady Akad. Nauk S.S.S.R.* 96, 115-117 (1954). The investigation was undertaken to test whether the C_2H_4 oxidation reaction in a vessel at reduced pressure and not filled with catalyst is homogeneous in character, or whether it can be best explained by a heterogeneous-homogeneous process. The reaction was studied under static conditions in tubes of different diameters, the walls of which were either uncoated or coated with Ag or with NaCl, and at temps. of 400, 410, 420, and 440°. It was concluded that the reactions in unfilled vessels were branched-chain homogeneous reactions. A coating of the vessel walls with Ag accelerated greatly the rate at which the max. change in temp. was attained, whereas NaCl has an opposite effect. The activation energy was 42,000 cal. in uncoated vessels, and 27,000 in Ag-coated vessels. The homogeneous process thus originated on a solid surface, and is therefore a heterogeneous-homogeneous process. W. M. Sternberg

①

Inst.-Phys. Chem. in Prangheurstey, A S USSR

POLYAKOV, M.V.

Visual observation of heterogeneous-homogeneous oxidation of hydrogen in the presence of platinum. Ya. V. Zhigalov and M. V. Polyakov (L. V. Pisarzhevskii Inst. Phys. Chem., Kiev). *Doklady Akad. Nauk Ukr. R.S.R.* 1955, No. 4, 350-61 (Russian summary); cf. *C.A.* 44, 1782. A glass flask (diam. 10 cm.) provided with Pt electrodes fused into a central glass tube was evacuated and filled with a mixt. of H₂ 44, O₂ 23, and N₂ 44% at 80-210 mm. Hg. With Pt dust on the glass tube immediately above the electrodes illumination appeared on the Pt dust after the gas was ignited by an arc across the electrodes. The illumination spread from the catalyst toward the walls where it was extinguished; it reached the walls within 0.5-1 sec. but upon refilling without evacuation it reached the walls within 2-3 sec. The temp. of the glass (and the dust catalyst) was 40-50°. No illumination occurred without preliminary ignition, or in the presence of 1% tetraethyllead, or when the Pt dust was replaced with a Pt plate or spiral, or when the Pt dust was coated with wax. On the other hand it was promoted by traces (0.5%) of oxides of N. It is noted as the first exptl. instance of a homogeneous-heterogeneous catalytic reaction at low temp. I. Bencowitz

Polyakov, M.V.

USSR/Physical Chemistry - Kinetics, Combustion, Explosions, Topo-chemistry, Catalysis.

B-9

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3892.

Author : M.V. Polyakov.

Inst : Academy of Sciences of USSR.

Title : Study of Kinetics and Mechanism of Incomplete Hydrocarbon Oxidation.

Orig Pub: in symposium Khim. pererabotka nef. uglevodorodov. M., AN SSSR, 1956, 369-377.

Abstract: The author discusses the results of his own and other people's experimental investigations of a series of oxidation processes from the point of view of the theory of heterogeneous-homogeneous catalysis. Bibliography with 50 titles.

Card : 1/1

-22-

POLYAKOV, M. V.

The reaction of titanium carbide with nickel. V. N. Brezhenko, V. M. Polyakova, and Z. P. Golubenko. *Vopr. Poroshkov. Met. i Prilozh. Materialov*, Akad. Nauk d. Ukr. S.S.R. 1956, No. 3, 62-72. The system TiC-Ni was studied thermally, metallographically, and by x-ray methods at concns. of 0-12% TiC. The eutectic in the system occurs at 9.8% TiC (1260°). The strong tendency to liquation precludes the formation of homogeneous pigs whose compn. approaches the eutectic. C. H. Fuchsman.

3, 8 (4E2C)

PM R &

Polyakov, M.V.

USSR/Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis, B-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 450

Author: Vysotskiy, Z. Z., and Polyakov, M. V.

Institution: None

Title: On the Effect of Small Additions of Nitric Oxides on the Oxidation
of Methane in the Presence of a Platinum Catalyst

Original
Periodical: Ukr. khim. zh., 1956, Vol 22, No 2, 180-185

Abstract: The oxidation of CH_4 by air in the presence of nitric oxides at 550° was studied with the aid of a differential thermocouple in a cylindrical reaction vessel coated with Pt; the reaction mixture contained 15% CH_4 . A preliminary flushing of the reactor with a mixture of nitric oxides and air increases the initial temperature rise (ΔT_{max}) and reduces the time required to attain it. At total pressures of 0-400 mm Hg, ΔT_{max} is proportional to the percent of nitric oxides present in the mixture (0.13-0.68%). When the pressure increases

Card 1/2

Polyakov, M. V.

USSR/Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis, B-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 451

Author: Kornienko, T. P., and Polyakov, M. V.

Institution: None

Title: On the Initiation of the Oxidation of Methane by Hard Surfaces

Original

Periodical: Ukr. khim. zh., 1956, 22, No 2, 186-189

Abstract: The oxidation of CH_4 by air was studied with the aid of a 3-junction thermocouple by the method of partial calorimetric measurements (L. M. Bogoyavlenskaya and A. A. Koval'skiy, Zh. fiz. khimii, 1946, Vol 20, 1325) in a cylindrical reactor, the walls of which were coated with $\text{Mg}_3(\text{PO}_4)_2$; the reaction temperature was 500-600° and the pressure 400-500 mm Hg with a CH_4 content in the mixture of 15%. The addition of 0.2% nitric oxides increases heat production at the center of the vessel and hence, the intensity of the homogeneous oxidation of the CH_4 . The catalytic effect of the addition of one percent HCl vapor

C. Card 1/2

POLYAKOV, M. V.

Kinetics of the oxidation of methane under static conditions. V. I. Urizko and M. V. Polyakov. *Ukrain. Khim. Zhur.* 22, 705-12 (1956) (in Russian). Air-5% CH₄ mixts.

were placed in a quartz reactor at 500-600° and 303-405 mm. The rates of reaction given by the pressure change and by the temp. difference between the wall and the center of the vessel were the same. However, reproducibility of results required that the gas mixt. be passed through the reactor for some time before starting the measurements. These results are interpreted from the point of view of a homogeneous gas-phase chain reaction that is initiated and ended at the walls. The concn. of CH₃O in the mixt. rapidly rises and then falls. It is an early intermediate in the oxidation. Effect of oxides of nitrogen on the oxidation of methane. *Ibid.* 718-19. — Two max. in the temp. difference are observed when 15% CH₄-air mixts. contg. 0.2% NO are reacted in a quartz vessel at 300 mm. As the temp. is raised from 420° to 525° the time difference between the max. drops from 13 to 1.5 min. The effective activation energies are 52 and 68 kcal./mole for the earlier and the later max., resp. The 1st is related to the homogeneous formation of CO and CH₃O, the 2nd to the oxidation of H and CO, the products of CH₄O decompn. At low NO concns, the 2 max. are not observed. NO affects the rate of chain initiation at the surface. For reproducible results the surface must be stabilized by contact with the mixt.

John Hawn Scott

POLYAKOV, M.V.

URIZKO, V.I.; POLYAKOV, M.V.

Effect of nitrogen oxides on the oxidation of methane. Ukr.khim.
shur. 22 no.6:713-719 '56. (MLBA 10:7)

1. Institut fizicheskoy khimii im. L.V. Pisarshevskogo AN USSR.
(Methane) (Nitrogen oxides) (Oxidation)

VYSOTSKIY, Z.Z. [Vysots'kiy, Z.Z.]; POLYAKOV, M.V.

Peculiarities of the oxidation of methane in the methane -
air mixture near its upper explosion limit [with summary in English].
Dop. AN URSR no.3:284-288 '58. (MIRA 11:5)

1. Institut fizichnoi khimii im. L.V. Pisarzhevskogo AN URSR.
Predstavleno akademikom AN USSR A.I. Brodskim [O.I. Brods'kiy].
(Methane) (Oxidation)

POLYAKOV, M.V.

VYSOTSKIY, Z.Z.; POLYAKOV, M.V.

Study of methane oxidation. Ukr. khim. zhur. 24 no.1:46-54
'58. (MIRA 11:4)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Oxidation) (Methane)

URIZKO, V.I.; POLYAKOV, M.V.

Effect of potassium borate on the oxidation of methane. Ukr. khim.
zhur. 24 no. 2:177-181 '58. (MIRA 11:6)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN USSR.
(Methane)
(Oxidation)
(Potassium borate)

KORNIYENKO, T.P.; POLYAKOV, M.V.

Effect of the reaction vessel walls on the oxidation of methane.
Ukr. khim. zhur. 24 no. 2:182-189 '58. (MIRA 11:6)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN USSR.
(Methane)
(Oxidation)

LOOS, S.M.; POLYAKOV, M.V.

Study of the oxidation kinetics and oxidation mechanism of methyl alcohol in the absence of a catalyst. Part 1. Ukr. khim. zhur. 24 no. 2:190-197 '58. (MIRA 11:6)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN URSR.
(Methanol)
(Oxidation)

(Chemical reaction, Rate of)

LOOS, S.M.; POLYAKOV, M.V.

Oxidation kinetics and mechanism of methyl alcohol in the presence of
platinum. Ukr. khim. zhur. 24 no.3:305-311 '58. (MIRA 11:9)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Methanol) (Oxidation)

KORNIYENKO, T.P.; POLYAKOV, M.V.

Study of the methanol conversion to formaldehyde in contact with
silver. Ukr. khim. zhur. 24 no.3:312-319 '58. (MIRA 11:9)

1. Institut fizicheskoy khimii im. L.V. Pissarzhevskogo AN USSR.
(Methanol) (Formaldehyde)

SHALYA, V.V.; POLYAKOV, M.V.

Effect of the vessel walls on the oxidation kinetics of a propane-butane mixture. Ukr. khim. zhur. 24 no.4:453-458 '58.

(MIRA 11:10)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Propane) (Butane) (Oxidation)

5(4)

SOV/21-59-1-18/26

AUTHORS: Polyakov, M.V., Vysotskiy, Z.Z., Shalya, V.V. and Gushchin, P.P.

TITLE: On the Existence of a Heterogeneous-Homogeneous Mechanism in Fluid Catalysis Conditions (K voprosu o nalichii geterogenno-gomogenogo mekhanizma v usloviyakh flyuidnogo kataliza)

PERIODICAL: Dopolvidi Akademii nauk Ukrain's'koi RSR, 1959, Nr 1, pp 67-71 (USSR)

ABSTRACT: The method of fluid catalysis is used (on the example of the reaction of conversion of methanol into formaldehyde in the presence of a copper-pumice catalyst) to clear up the macromechanism of gas reactions in conditions as close as possible to the conditions of the usual industrial catalytic processes. The results in the whole, and the analysis thereof, lead to the conclusion that the studied catalytic process in the

Card 1/2

SOV/21-59-1-18/26

On the Existence of a Heterogeneous-Homogeneous Mechanism in Fluid Catalysis Conditions.

boiling contact layer is a complex heterogeneous-homogeneous reaction with homogeneous stages proceeding not only beyond the fluid catalyst's layer, but inside the catalyst's layer, between its grains, as well. The observed facts do not fit into the picture of a purely heterogeneous catalytic process. There are 4 graphs and 8 references, 6 of which are Soviet, 1 Italian and 1 English.

ASSOCIATION: Institut fizicheskoy khimii im. L.V. Pisarzhevskogo, AN UkrSSR (Institute of Physical Chemistry imeni L.V. Pisarzhevskiy of the AS UkrSSR).

PRESENTED: July 28, 1958, by A.I. Brodskiy, Member of the ASUkrSSR

Card 2/2

5.1190,5.3300

75676
SOV/80-32-10-25/51

AUTHORS: Polyakov, M. V., Shalya, V. V., Vysotskiy, Z. Z.

TITLE: Investigation of the Catalytic Conversion of Methanol Into Formaldehyde in Fluidized Bed

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2275-2283 (USSR)

ABSTRACT: Copper catalyst suspended in gaseous stream was used in the subject study which was conducted in a wide range of methanol vapor to air ratio, including the explosive range. Pumice and quartz were used as catalyst carriers; the optimum amount of catalyst was 24 mg copper to 1 cm³ of carrier. The temperature corresponding to the maximum yield of formaldehyde was lower than in catalysis over stationary catalyst layer (540-580° against 700-750°). The content of methanol vapor in the gaseous mixture corresponding to the maximum yield of formaldehyde was 30%. In the range of explosive mixtures, the yield of formaldehyde dropped

Card 1/5

Investigation of the Catalytic Conversion of
Methanol Into Formaldehyde in Fluidized Bed

75676
SOV/80-32-10-25/51

sharply, and the yield of CO_2 , H_2 , and CO increased. As the methanol content approached the lower limit of explosive mixtures (7% methanol), the yield of formaldehyde increased again. In the range of 9 to 20% methanol content, a flame appeared in some instances over the fluidized catalyst bed; sometimes a quick flash or explosion occurred. When a catalyst of lower activity was used, the formaldehyde yield dropped sharply when the temperature reached 540-550°, and a flame appeared over the fluidized bed. The appearance of this flame showed the presence of a homogeneous reaction within the composite heterogeno-homogeneous catalytic process. This homogeneous reaction originated on the surface of the catalyst; under different conditions, when the walls of the reaction vessel over the fluidized bed are overheated, such reactions can also originate as wall reactions. The presence of homogeneous reactions between the catalyst granules was confirmed by empirical data, as discussed below.

Card 2/5

Investigation of the Catalytic Conversion of
Methanol Into Formaldehyde in Fluidized Bed

75676
SOV/80-32-10-25/51

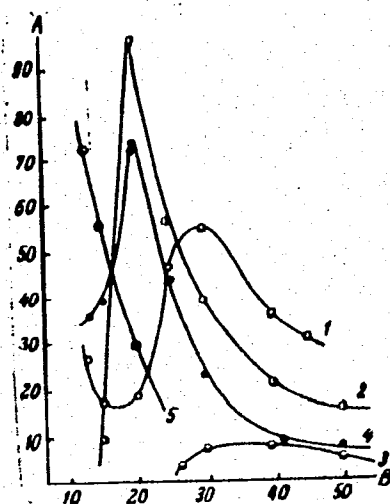


Fig. 3. Yield of products in re-
lation to CH₃OH content in the
mixture at 520°C: (A) yield (in %) of
HCHO (1), H₂ (2), CO (3), CO₂ (4),
O₂ (5); (B) content of CH₃OH (in %).

Card 3/5

Investigation of the Catalytic Conversion of
Methanol Into Formaldehyde in Fluidized Bed

75676

SOV/80-32-10-25/51

The gradual change of the curves expressing the yield of the products in relation to temperature up to the moment of the appearance of the flame, indicated that the flame constituted a growth of primary homogeneous stages in the space between the catalyst granules. The yield of formaldehyde was lower in stationary than in fluidized catalyst, other conditions being equal; this was explainable by the decrease of the gaps between the catalyst grains in the stationary state which reduced the chances of homogeneous reactions taking place in these gaps. Further, the decrease of the yield of formaldehyde, H_2 , and the decrease of the total rate of conversion with the decreasing flow velocity of the gas mixture could be explained only by the contraction of the gaps between the catalyst grains. Porous (with pumice carrier) and nonporous (with quartz carrier) catalysts gave identical yields; this showed that only the outside catalyst layer participated in the catalysis, and this is an additional, indirect argument in favor

Card 4/5.

BLOKH, A.M.; KOCHENOV, A.V.; GINZBURG, A.I., glavnyy red.; APEL'TSIN, F.R., red.;
GRIGOR'YEV, V.M., red.; POLYAKOV, M.V., red.; RODIONOV, G.G., red.;
STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.;
CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V.,
red.; EYGELES, M.A., red.

[Impurity elements in bone phosphate of fossil fishes.] Elementy-
primesi v kostnom fosfate iskopaemykh ryb. Moskva, Nedra, 1964.
106 p. (Geologiya mestorozhdenii redkikh elementov, no.24).

(MIRA 19:1)

GELLER, B.A.; NEYMARK, I.Ye.; RUBANIK, M.Ya.; GRAGEROV, I.P.; POLYAKOV,
M.V.; RUSOV, M.T.; DAIN, B.Ya.; REKASHEVA, A.F.; STRAZHESKO,
D.N.; LUNENOK, V.A.; ROYTER, V.A.; SULIMA, L.V.; FOMENKO, A.S.

Aleksandr Il'ich Brodskii, 1895- ; on his seventieth birthday.
Zhur. fiz. khim. 39 no.6:1540-1541 Je '65. (MIRA 18:11)

5.1115

24068
S/069/61/023/003/001/004
B127/B217

AUTHORS: Vysotskiy, Z. Z., Divnich, L. F., Polyakov, M. V.
TITLE: Effect of vaporous shaping agents on porous structures and
on the sorption properties of a silica gel surface
PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 3, 1961, 248-254

TEXT: The paper deals with new experimental results for clarifying the mechanism in the microrelief formation and the sorption properties of the xero gel surface. Synthesis method: silica gel specimens were treated with benzene-, toluene-, orthoxylene-, dioxane-, isopropanol-, and methanol vapor. The sorption isotherms of toluene vapor were measured in these as well as in a corresponding check specimen at 20°C in vacuum by a quartz spring balance. The isotherms of benzene vapor were recorded in the same manner. The specific surface S of the specimens studied was determined by the BET method. A basal surface of 32 Å was assumed for one benzene molecule. The pore radius of silica gel is best determined by the desorption branch of the sorption isotherm of toluene. The adsorption isotherm of methyl orange for "benzene, toluene, xylene gels" was taken from

Card 1/4

Effect of vaporous shaping agents on...

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S/069/61/023/003/001/004
B127/B217

a 5 % CH_3COOH solution. The size of all adsorption isotherms was referred to 1 m^2 gel surface. It was found that (a) the primary adsorption agrees with the desorption in the branch of the sorption isotherms of benzene vapor in the zone of small p/p_s for all specimens and that the corresponding branches of isotherms do not meet in the case of toluene adsorption. (b) More intensive adsorption of toluene as compared with benzene, in the reversible part of the isotherm. (c) The adsorption of methyl orange decreases in the order: gel treated with benzene > toluene > o-xylene. The first of these results is explained by an alteration of the mutual position of the mobile surface groups, e.g., of the hydroxyl groups, under the influence of the orienting effect of the adsorbed molecules. This effect is the greater, the more polar the adsorbed molecules are. A decrease of the H-bonds between adjacent surface molecules is assumed as fundamental process by which hydroxyls are liberated for their subsequent participation in the adsorption of molecules from the vapor phase. This also explains the initially inconsiderable adsorption. The increasing toluene covering of the gel, above all after its condensation in the gel pores, facilitates the liberation and the position change of surface hydroxyls. At the moment of occupation of all sorption spaces with toluene, this reorganization of

Card 2/4

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Effect of vaporous shaping agents on...

the gel surface is complete, and the desorption branch corresponds to an equilibrium state, also when p/p_g is small. This is also observed in the toluene adsorption isotherm. S increases in the case of polar molecules of toluene, orthoxylene, and isopropyl alcohol. Methanol and dioxane, the properties of which resemble more those of water than those of other used shaping agents, form gels with maximum S . The quantity S is directly connected with the size of the elementary particles, of which the xerogel skeleton is composed. The latter depends on the chemical character of the shaping agent. The experimental data show that a connection between the physical properties of the shaping agent or the intermicellar liquid and the final structure of the gel is impossible, but they confirm the chemical interaction between shaping agent and gel. An effect of the surface tension of the intermicellar liquid on the formation was not observed either. There are 5 figures, 1 table, and 15 references: 10 Soviet-bloc and 5 non-Soviet-bloc. The most important reference to the English-language publication reads as follows: R. G. Haldeman, P. H. Emmett, J. Phys. Chem. 59, 103, 1955.

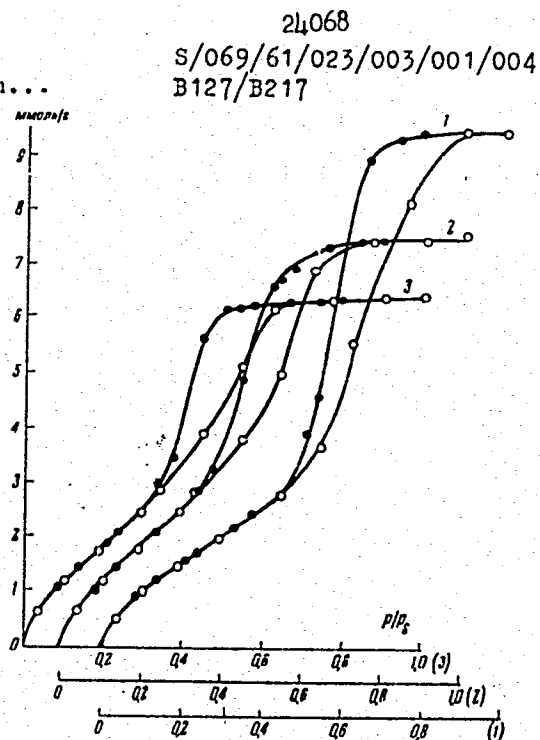
ASSOCIATION: Institut fizicheskoy khimii AN USSR im. L. V. Pisarzhevskogo
(Institute of Physical Chemistry AS UkrSSR imeni
L. V. Pisarzhevskiy)

Card 3/4

Effect of vaporous shaping agents on...

SUBMITTED: June 29, 1959

Legend to Fig. 1: Adsorption isotherms of toluene vapor at 20°C on "benzene" - (1); "toluene" - (2); "orthoxylen" gel (3); • = desorption.



Card 4/4

SHALYA, V.V.; KULINICH, M.G.; POLYAKOV, M.V.

Effect of the size of grains on the conversion of methyl alcohol
to formaldehyde in a fluid bed of silver and copper catalysts.
Kin. i kat. 5 no.5:916-919 S-O '64. (MIRA 17:12)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

L-3152-45		ENT(=)/RPT(=)/APA(=)-2/1	Feb-10/Pr	RNH/WH	3/6
ACCESSION NR: AP3016716		UR/0286/65/000/010/0017/0017			
AUTHORS: Polyakov, M. V.; Vysotskiy, Z. Z.; Stralko, V. V.; Gushchin, P. P.					
TITLE: A method for obtaining organosilica gel. / Class 12, No. 170914 15					
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 17					
TOPIC TAGS: organosilica gel, silica gel, organic compound, ethanolamine					
ABSTRACT: This Author Certificate presents a method for obtaining organosilica gel in the vapor of an organic compound. To obtain silicagel with molecular screen properties, the acidified hydrogel or xerogel of silicic acid is dried in the vapor of ethanolamine at a temperature of 20C over strong desiccants, at atmospheric pressure or in a vacuum.					
ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN UkrSSR (Institute of Physical Chemistry, AN UkrSSR)					
SUBMITTED: 28Mar64		ENCL: 00		SUB CODE: GC, CC	
NO REF SOV: 000		OTHER: 000			
Card 1/1R					

ACCESSION NR: AT4020706

8/0000/63/000/000/0156/0159

AUTHOR: Polishchuk, Yu. N.; Korniyenko, T. P.; Polyakov, M. V.

TITLE: Radiation-induced polymerization of styrene in the presence of solid additives

SOURCE: Karbotsephy*ye vy*sokomolekulyarny*ye soyedineniya (Carbon-chain macro-molecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 156-159

TOPIC TAGS: radiation polymerization, styrene, silicagel, zinc oxide, aluminum silicate, quartz, titanium dioxide, vanadium pentoxide, metallic magnesium, activated charcoal, polymerization catalyst

ABSTRACT: The polymerization of styrene under the influence of γ -rays in the presence of solid additives such as silicagel, zinc oxide, aluminum silicate, activated charcoal, quartz, titanium dioxide, vanadium pentoxide and metallic magnesium was investigated at room temperature. On the basis of polymer yields, the important role of the solid additives in the initiation of the polymer chains was demonstrated. This makes it possible to assume a hetero-homogeneous mechanism for the radiation polymerization of styrene under the conditions investigated. An analogy was observed between the action of some solid additives on ionic radiation polymerization and on the radiation polymerization of styrene proceeding at room temperature. The polymer yields and molecular weights are given for additive

Card 1/2

STAVROV, O.D.; GINZBURG, A.I., glavnyy red.; POLYAKOV, M.V., zam. glav-
nogo red.; APEL'TSIN, F.R., red.; GRIGOR'YEV, V.M., red.; RODIO-
NOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.;
FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L.,
red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES,
M.A., red.; FEDOTOVA, A.I., red. izd-va; IYERUSALIMSKAYA, Ye., tekhn.
red.

[Basic characteristics of lithium, rubidium, cesium in the process
of the formation granite intrusives and the pegmatites connected
with them.] Osnovnye cherty geokhimii litia, rubidii, tseziia v
protssesse stanovlenia granitnykh intruzivov i sviazannykh s nimi
pegmatitov. Moskva, Gosgeoltekhizdat, 1963. 140 p. (Geologia mes-
torozhdenii redkikh elementov, no.21). (MIRA 17:2)

POLISHCHUK, Yu.N.; KORNIYENKO, T.P. [Korniienko, T.P.]; ZELENCHUKOVA, T.G.
[Zelenchukova, T.H.]; POLYAKOV, M.V.

Effect of a solid surface on the radiation-induced polymerization of
vinyl compounds. Dop. AN URSR no.5:607-609 '64. (MIRA 17:6)

1. Predstavleno akademikom AN UkrSSR A.I.Brodskim [Brods'kyi, O.I.].

MITSYUK, B.M.; VYSOTSKIY, Z.Z.; POLYAKOV, M.V.

Role played by the polarity of the intracellular liquid and by the intensity of its interaction with the surface of silicic acid hydrogel particles in the formation of silica gel texture. Dokl. AN SSSR 155 no.6:1404-1406 Ap '64. (MIRA 17:4)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR.
Predstavleno akademikom P.A.Rebinderom.

ZABOLOTNAYA, N.P.; NOVIKOVA, M.I.; SHATSKAYA, V.T.; GINZBURG, A.I.,
glavnyy red.; POLYAKOV, M.V., zam. glavnogo red.; APEL'TSIN,
F.R., red.; GRIGOR'YEV, V.M., red.; RODIONOV, G.G., red.;
TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A.,
red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.;
SHCHERBINA, V.V., red.; EYGELES, M.A., red.; KOLOSHINA, T.V.,
red. izd-va; BYKOVA, V.V., tekhn. red.

[Tungsten-molybdenum-tin-beryllium deposits and their formation].
Vol'fram-molibden-olovo-berillievye mestorozhdenia i uslovia
ikh obrazovaniia. Moskva, Gosgeoltekhizdat, 1962. 94 p. (Geo-
logia mestorozhdenii redkikh elementov, no.18).

(MIRA 16:4)

(Metals, Rare and minor)

YEV MENENKO, N.P.; SHALYA, V.V.; POLYAKOV, M.V.

Oxidation of methanol in the presence of a silver catalyst.
Ukr. khim. zhur. 29 no.7:731-733 '63. (MIRA 16:8)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR.
(Methanol) (Oxidation) (Silver catalysts)

YEV MENENKO, N.P.; SHALYA, V.V.; POLYAKOV, M.V.

Effect of the diameter of quartz tubes on the decomposition of
methyl alcohol. Ukr.khim.zhur. 28 no.7:829-832 '62. (MIRA 15:12)

1. Institut fizicheskoy khimii im. L.V.Pisarshevskogo AN UkrSSR.
(Methanol) (Pyrolysis)

SHEYNMANN, Yu.M.; APEL'TSIN, F.R.; NECHAYEVA, Ye.A.; GINZBURG, A.I., red.;
MALYSHEV, I.I., red.; POLYAKOV, M.V., red.; RODIONOV, G.G., red.;
STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.;
KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V.,
red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; ROZHKOVA, L.G.,
red.izd-va; BYKOVA, V.V., tekhn.red.

[Alkaline intrusions, their distribution, and the mineralization
associated with them] Shchelochnye intruzii, ikh razmeshchenie i
svyazannaya s nimi mineralizatsiya. Moskva, Gos.nauchno-tekhn.
izd-vo lit-ry po geol.i okhrane neдр, 1961. 176 p. (Geologiya
mestorozhdenii redkikh elementov, no.12/13). (MIRA 15:8)
(Rocks, Igneous) (Ore deposits)

SHVEY, Igor' Vladimirovich; GINZBURG, A.I., glavnyy red.; POLYAKOV, M.V.,
zamestitel' glavnogo red.; APEL'TSIN, F.R., red.; GRIGOR'YEV, V.M.,
red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A.,
red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV,
Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.;
EYGELES, M.A., red.; ENTIN, M.L., red.izd-va; BYKOVA, V.V., tekhn.red.

[Basic geochemical problems of rare earth elements and yttrium in
endogenic processes] Osnovnye voprosy geokhimii redkozemel'nykh
elementov i ittrii v endogennykh protsessakh. Moskva, Gos. nauchn.-
tekhn. izd-vo lit-ry, po geologii i okhrane nedr, 1962. 105 p.
(Geologiya mestorozhdenii redkikh elementov, no.15). (MIRA 15:11)
(Rare earth metals) (Yttrium)

KORNIYENKO, T. P.; KAPUSTINA, F. G.; POLYAKOV, M. V.

Study of the conversion of ethyl alcohol to acetaldehyde by the method of separate calorimetric measurement. Part.2: Role of oxygen in the process of alcohol conversion. Ukr. khim. zhur. 28 no.3:343-346 '62. (MIRA 15:10)

1. Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN UkrSSR.

(Ethyl alcohol) (Acetaldehyde)

GINZBURG, A.I.; GORZHEVSKAYA, S.A.; YEROFYEVA, Ye.A.; SIDORENKO, G.A.;
MALYSHEV, I.I., red.; POLYAKOV, M.V., red.; RODIONOV, G.G., red.;
STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.;
KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SEMANENKOV, I.V.,
red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; NEMANOVA, G.F.,
red.izd-va; BYKOVA, V.V., tekhn.red.

[Titanates, tantalates, and niobates] Titano-tantalo-niobaty.
Moskva. Gos. nauchno-tekhn.izd-vo lit-ry po geol.i okhrane nedr.
Part 1. 1960. 166 p. (Geologiya mestorozhdenii redkikh elementov,
no.10). (MIRA 14:6)

(Titanates)

(Tantalates)

(Niobates)

KORNIYENKO, T.P.; KAPUSTINA, F.G.; POLYAKOV, M.V.

Method of separate calorimetry for studying the conversion of ethyl alcohol to acetaldehyde. Part 1: Effect of the nature of solid surface. Ukr.khim.zhur. 28 no.2:192-198 '62. (MIRA 15:3)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN USSR.
(Ethyl alcohol) (Acetaldehyde)

VYSOTSKIY, Z.Z.; DIVNICH, L.F.; ~~POLYAKOV, M.V.~~

Effect of dissolved dyes on the formation of specific
adsorption properties of a silica gel surface. Dokl.
AN SSSR 139 no.6:1400-1402 Ag '61. (MIRA 14.8)

1. Institut fizicheskoy khimii im. I.V. Pizarzhevskogo
Akademii nauk USSR. Predstavleno akademikom A.A. Balandinym.
(Silica) (Adsorption)

SHALYA, V.V.; PIONTKOVSKAYA, M.A.; POLYAKOV, M.V.

Oxidation kinetics of a propane-butane mixture in the presence of
platinum and vanadium pentoxide. Ukr. khim. zhur. 27 no.2:184-189
(MIRA 14:3)
161.

1. Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN USSR.
(Oxidation) (Propane) (Butane)

KORNIYENKO, T.P.; POLYAKOV, M.V.

Effect of lining the walls of a vessel with magnesium chloride on the process of methane oxidation. Ukr. khim. zhur. 26 no.4:440-445 '60.
(MIRA 13:9)

1. Institut fizicheskoy khimii AN USSR.

(Magnesium chloride)

(Methane)

(Oxidation)

83667

S/073/60/026/004/006/008
B016/B054

11.6200
AUTHORS:

Korniienko, T. P. and Polyakov, M. V.

TITLE:

The Influence of Magnesium Chloride Coats of Vessel Walls
on the Oxidation Process of Methane

PERIODICAL:

Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 4,
pp. 440-445

TEXT: In previous papers (Refs. 1,2) the authors proved the heterogeneous-homogeneous nature of oxidative chain reactions by the example of methane, and the butane-propane petroleum fraction. They observed in both cases a strong reduction of heating in the vessel center under the influence of the coating of the inner walls with chlorides of alkali- or alkaline-earth metals. This effect is not explained. Therefore, the authors studied in the present paper the influence of a gradually forming coat of magnesium chloride on the volume stage of the oxidation process of methane and on the yield in reaction products. Fig. 1 shows kinetic curves of heating in the center of the quartz vessel as dependent on the degree of coating of its inner walls with magnesium chloride. Table 1 gives data on

Card 1/4

83667

The Influence of Magnesium Chloride Coats of Vessel Walls on the Oxidation Process of Methane S/073/60/026/004/006/006
B016/B054

the heating of the inner surface. These data show that even in the presence of thin MgCl_2 coats the heating in the vessel center is strongly reduced. A coat covering $3/4$ of the vessel surface is sufficient to attain a steady heating which is very small as compared to a vessel with uncoated walls. Besides, Table 1 shows that with a full coating of the vessel with MgCl_2 its surface is practically not heated at all. As to the time required for maximum heating in the vessel center, Fig. 1 shows that it increases in proportion to the coating of walls with MgCl_2 . Figs. 2-6 and Table 2

illustrate the data of analysis of the products of methane oxidation with various degrees of coating of the vessel. Fig. 2 shows, as an example, the kinetics of the accumulation of CO and CO_2 , as well as of the methane- X

and oxygen consumption, when half the surface is coated (similar results were obtained with other degrees of coating). A comparison of the consumption curves of CH_4 and O_2 (Fig. 2) shows that the transformation of CH_4 strongly lags behind the consumption of O_2 at the start of the reaction. This also applies to a vessel with uncoated walls (Figs. 5 and 6). It is possible that the oxygen adsorption on the vessel walls forms one of

Card 2/4

83667

The Influence of Magnesium Chloride Coats of Vessel Walls on the Oxidation Process of Methane S/073/60/026/004/006/008
B016/B054

the first steps of the methane oxidation process. Fig. 2 and Table 2 also show that the reaction rate of methane oxidation is mainly determined by the CO yield (A. B. Nalbandyan and co-workers, Ref. 6). On the other hand, the final yield in CO (Fig. 3), as well as in CO₂ (Fig. 4) and H₂ (Table 2),

is little modified by the coating degree of the vessel. The authors conclude from their results that the reduction of heating in the vessel center (Fig. 1) cannot be explained by a change in the reaction mechanism. The cause of this phenomenon must be the strongly inhibiting action of the MgCl₂ coat on CH₄ oxidation, and above all the volume stage of this

reaction. As the solid surface also influences oxidation in the further stages, the authors conclude that the CH₄ oxidation represents a

heterogeneous-homogeneous catalytic process in which the walls of the reaction vessel play the part of the catalyst. There are 6 figures, 3 tables, and 7 Soviet references.

ASSOCIATION: Institut fizicheskoy khimii AN USSR (Institute of Physical Chemistry of the AS UkrSSR)

Card 3/4

83667

The Influence of Magnesium Chloride Coats of
Vessel Walls on the Oxidation Process of Methane

S/073/60/026/004/006/008
B016/B054

SUBMITTED: March 5, 1959

Card 4/4

POLISHCHUK, Yu.N.; KORNIYENKO, T.P.; POLYAKOV, M.V.

Role of the reaction vessel walls in the process of initiated polymerization of styrene. Ukr.khim.zhur. 28 no.9:1024-1030 '62. (MIRA 15:12)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
AN UkrSSR.
(Styrene) (Polymerization) (Chemical reactors)

POLYAKOV, M.V.; YEVMENENKO, N.P.; SHALYA, V.V.

Effect of the reactor diameter on the conversion of methanol
in the presence of a silver catalyst. Ukr.khim.zhur. 28
no.9:1019-1023 '62. (MIRA 15:12)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
AN UkrSSR.

(Chemical reactors)
(Methanol)

S/069/61/023/003/002/004
B127/B217

AUTHORS: Vysotskiy, Z. Z., Polyakov, M. V.

TITLE: Production of ultraporous silica gels of "intraparticular" porosity

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 3, 1961, 255-256

TEXT: The authors treat the production of anhydrous silica gel from aqueous silica gel at low temperatures. The gel thus produced adsorbs benzene and methanol to an inconsiderable extent, but large amounts of water. These sorption properties are explained by the fact that the porosity is preserved in the gel particles and its surface is chemically not affected. In the usual industrial methods, dehydration is carried out either at very high temperatures by evaporation or at very low temperatures by freezing. In either case, however, the basic structure of the hydrogel is destroyed. A new drying method was found in the course of the study of the effect of vapor pressure over the hydrogel, of temperature and dehydration rate on the silica gel structure. An intensive dehydration of the hydrogels of silicic acid under mild conditions occurs, while the gel

Card 1/3

Production of ultraporous silica gels of... S/069/61/023/003/002/004
B127/B217

structure is preserved. Aqueous silica gel is obtained by mixing sodium silicate solution and sulfuric acid. The washed gel was dried in the exsiccator with the aid of P_2O_5 , $CaCl_2$, alumina gel, silica gel, or concentrated sulfuric acid. In order to obtain a maximum reduction of the vapor pressure over the hydrogel, it was put into a Petri dish and the dish covered with a gauze net. Then, the dish was put in reverse position in the exsiccator, as closely as possible to the surface of the drying agent. In order to prevent the aging of the gel, the exsiccator was put in the refrigerator at approximately $0^{\circ}C$. 98-99 % of the water was evaporated by this method within 10-15 days, just as much as by six hours' heating in the drier at $180^{\circ}C$. After drying, the hydrogel was kept for 4-6 hr in the vacuum drying oven at $80-100^{\circ}C$. The adsorption isotherm of steam rises sharply at all p/p_s, and has a large hysteresis loop. The retardation of thermal gel aging in this method prevents the condensation to polysilicic acids under formation of siloxane bonds between the particles. As a result, an ultraporous xerogel was obtained in which the original porosity of the hydrogel was maintained. The table gives the sorption properties:

Card 2/3

Production of ultraporous silica gels of...

S/069/61/023/003/002/004
B127/B217

Type	Static activity, %	
	with C_6H_6	with H_2O
C-209 (S-209)	4.2	17.8
C-210 (S-210)	1.5	21.5
C-211 (S-211)	3.3	16.4
C-212 (S-212)	2.2	16.6

There are 1 figure and 1 table.

ASSOCIATION: Institut fizicheskoy khimii AN USSR im. L. V. Pisarzhevskogo
(Institute of Physical Chemistry AS UkrSSR imeni
L. V. Pisarzhevskiy)

SUBMITTED: May 24, 1960

Card 3/3

BOYARSHINOV, Mikhail Ivanovich, otv. red.; POLYAKOV, Mikhail
Georgiyevich, red.; CHAPAYKINA, F.K., red. izd-va;
MATLYUK, R.M., tekhn. red.

[Shaping metals by pressure] Obrabotka metallov davleniem: k
25-letiu raboty kafedry obrabotki metallov davleniem MGMI.
Sverdlovsk, Metallurgizdat, 1962. 197 p. (MIRA 16:2)

1. Magnitogorsk. Gorno-metallurgicheskiy institut.
(Rolling (Metalwork)) (Wire drawing)

SKOBELEV, K.I.; POLYAKOV, M.Ye.

Experience in melting ice crusts on a.c. contact network. Elek.
i tepl. tiaga 7 no.4:21 Ap '63. (MIRA 16:5)

1. Nachal'nik sluzhby elektrifikatsii i energeticheskogo khozyaystva
Severo-Kavkazskoy dorogi (for Skobelev).
(Electric railroads--Wires and wiring)

POLYAKOV, M.Ye.; BELIK, V.D.

Devices which increased the operational safety of the VVH-220 air-filled circuit breakers. Elek. i tepl.tiaga no.7:3-4, JI '63.

(MIRA 16:9)

1. Nachal'nik dorozhnoy elektrotekhnicheskoy laboratorii Severo-Kavkazskoy dorogi (for Polyakov) 2. Starshiy elektromekhanik remontno-revizionnogo tsekha Rostovskogo uchastka energosnabzheniya (for Belik).

(Electric switchgear)

POLYAKOV, M.Ye.; BELIK, V.D.

Devices which increased the operational safety of the VVN-220 air-filled circuit breakers. Elek. i tepl.tiaga no.7:3-4 JI '63.
(MIRA 16:9)

1. Nachal'nik dorozhnoy elektrotekhnicheskoy laboratorii Severo-Kavkazskoy dorogi (for Polyakov) 2. Starshiy elektromekhanik remontno-revizionnogo tsekha Rostovskogo uchastka energosnabzheniya (for Belik).

(Electric switchgear)

SKOBELEV, K.I.; POLYAKOV, M.Ye.

Melting of ice crusts on an a.c. contact network. Elek. i tepl.
tiaga 6 no.11:8-9 N '62. (MIRA 16:1)
(Electric railroads—Wires and wiring)

POLYAKOV, N.

New chains for racing motorcycles. Za rul. 21 no.4:17 Ap '63.

(MIRA 16:5)

1. Nachal'nik laboratorii stendovykh ispytaniy Tsentral'nogo
konstruktorsko-eksperimental'nogo byuro mototsiklostroyeniya.
(Motorcycles)

Polyakov, N.

25

PHASE I BOOK EXPLOITATION

SOV/6261

Kernenergie und Flotte; Artikelsammlung (Nuclear Energy and the Navy; Collection of Articles) [Berlin] Deutscher Militärverlag [1961].
232 p. Errata slip inserted. 2000 copies printed.

Translation from the Russian of: Atomnaya energiya i flot.

Translator: Erika Stouk, Lieutenant Commander. Responsibility for
German edition: Claus Gruszka, Engineer; Ed.: Klaus Krumsieg.

PURPOSE: This collection of articles is intended for officers of the
army, coast guard, and merchant marine.

COVERAGE: The book, a translation from the Russian, contains 25 articles dealing with the application of nuclear weapons to naval combat operations. Chapters 19 and 25 have been supplemented with additional data for this edition. The devastating features of nuclear explosions are discussed. Attention is also given to the protection of personnel, ships, and coastal facilities against nuclear weapons, and to the present and future applications of nuclear power plants to shipping. No personalities are mentioned. There are 16 references: 10 Russian (including 3 translations from English-language sources), 1 French, 1 German, 1 English, 1 American, and 2 either English or American.

Nuclear Energy and the Navy (Cont.)		SOV/6261
12.	<u>V. Galin</u> , Engineer Colonel. Nuclear Protection of Coastal Installations	106
13.	<u>I. Frolov</u> . Detection of Radiation	120
14.	<u>M. Alekseyev</u> , Engineer Lieutenant Colonel. Deactivation on Board Ship	129
15.	<u>N. Polyakov</u> , Engineer Captain (Navy). Protecting a Ship Against Ionizing Contamination	135
16.	<u>P. Khokhlov</u> . Living Conditions of the Crew on Board Ship	141
17.	<u>Ye. Nikiforov</u> , Lieutenant Colonel of Medical Service. Sanitary Management Aboard Ship	145
18.	<u>A. Bauman</u> , Captain (Navy), Docent, Candidate of Historical Sciences. Nuclear Weapons and Naval Tactics	151

Card 4/6

3/2

POLYAKOV, N.

Put the potentials of production in operation. Fin. SSSR 37
no.6:72-76 Je '63. (MIRA 16:9)

1. Zaveduyushchiy biyskim gorodskim finansovym otделom.
(Biysk—Finance) (Biysk—Auditing and inspection)

POLYAKOV, N., inzh.

New tires for racing motorcycles. Za rul. 21 no.6:15 Je '63.
(MIRA 16:11)

1. Nachal'nik laboratorii Tsentral'nogo konstruktorsko-eksperi-
mental'nogo byuro mototsiklostroyeniya.

POLYAKOV, N.

Put the potentials of production in operation. Fin. SSSR 37
no.6:72-76 Je '63. (MIRA 16:9)

1. Zaveduyushchiy biyskim gorodskim finansovym otделom.
(Biysk--Finance) (Biysk--Auditing and inspection)

POLIAKOV, N.

Put the potentials of production in operation. Fin. SSSR 37
no.6:72-76 Je '63. (MIRA 16:9)

1. Zaveduyushchiy biyskim gorodskim finansovym otделom.
(Biysk--Finance) (Biysk--Auditing and inspection)

POLYAKOV, N.

Development of the rear suspension. Za rul. 21 no.8:17
Ag '63. (MIRA 16:11)

1. Nachal'nik laboratorii stendovykh ispytaniy TSentral'nogo
konstruktorsko-eksperimental'nogo byuro mototsiklostroyeniya.